

## *International Education: China*

### **I. Content:**

I want my students to:

- A. Build a 1/6<sup>th</sup> scale model of a Terra Cotta warrior
- B. Understand: the Qin Dynasty, the importance of it in China's history and the reason for the building of the Terra Cotta Warriors

### **II. Prerequisites:**

In order to fully appreciate this lesson, the student should be familiar with:

- A. The history of the Qin Dynasty (**Teacher Handout #1**)
- B. History of the Terra Cotta Warriors (**Teacher Handout #2**)
- C. Properties of clay and clay construction methods

### **III. Instructional Objective:**

The student will be able to build, fire, and paint a 1/6<sup>th</sup> scale model of a Terra Cotta Warrior.

### **IV. Materials and Equipment:**

**Teacher:**      **Teacher Handout #1:** The First Emperor of China  
                     **Teacher Handout #2:** The Terracotta Pits  
                     Terra Cotta clay  
                     Clay tools  
                     Kiln  
                     Paint  
                     Paint brushes

**Student:**        Materials supplied by instructor

### **V. Instructional Procedures:**

- A. Give students a copy of **Teacher Handout #1** to read. Hold a class discussion on the importance of the Qin Dynasty in China's history and the reasons for building the Terra Cotta Warriors
- B. Give students a copy of **Teacher Handout #2** to read. Hold a class discussion on what went into the building, firing and painting of the Terra Cotta Warriors
- C. Instruct students on the properties of clay and the coil building technique.
- D. Students will then build, fire and paint a 1/6<sup>th</sup> scale model of a Terra Cotta Warrior.

### **VI. Assessment/Evaluation:**

Upon completion of this lesson, the student will be able to:

- A. Describe the importance of the Qin Dynasty on China's history
- B. Successfully build, fire and paint a 1/6<sup>th</sup> scale model of a Terra Cotta warrior

*International Education: China*

**VII. Idaho Achievement Standards:**

- 9-12.VA.1.1.1 Identify representative visual works of art from a variety of cultures and historical periods.
- 9-12.VA.1.1.2 Outline the history and function of a particular visual art form.
- 9-12.VA.3.1.1 Select and apply media, techniques, and processes effectively and with artistic intention.
- 9-12.VA.3.1.2 Demonstrate safe and proper use, care, and storage of media, materials, and equipment.
- 9-12.VA.3.1.4 Present convincing or accurately rendered subjects that demonstrate refined observational skills
- 9-12.VA.3.2.5 Create a body of work that develops a specific theme, idea or style of art
- 9-12.VA.3.3.1 Plan and produce a work of art applying media, techniques, and processes with skill, confidence, and sensitivity.

[http://www.cnhomestay.com/city/terracotta/xian\\_history.htm](http://www.cnhomestay.com/city/terracotta/xian_history.htm)

## *The First Emperor of China*

Emperor Qin Shi Huang had the greatest and longest-lasting influence of over 300 emperors who ruled dynasties throughout Chinese history. He established China's first feudal empire, with the title "Huang Di" he created for feudal rulers reigning supreme throughout over 2,000 years feudal society.



About 300 years after Sakyamuni, the founder of Buddhism, was born in what is now India, a baby boy was born in Handan, an ancient town in northern China. His first cry was no different from that of any other baby. Several decades later, however, he became a man to create new world and a person to be commemorated in history. The founder of the first unified empire in the history of China, as well as its first emperor, he was Emperor Qin Shi Huang. The name of **Qin Shi Huang** has been kept alive in the mind of all Chinese, just as the name of Napoleon rings out to the French and tales of the Pyramids still enchant modern Egyptians. Politicians have taken an interest in his political ambitions, gains and losses; ordinary people are more interested in his unusual life. His life and his political career are indeed still obscure.

Qin Shi Huang had a beleaguered and unstable childhood due to frequent wars between the seven states existing during the period. His father, Yi Ren, son of the King of Qin, was held hostage in the State of Zhao. Thereafter, the family led a miserable life until Lu Buwei, a wealthy merchant doing business in Zhao, exhibited great political foresight when recognizing that Yi Ren was an important figure. Lu not only presented his favorite concubine to Yi, but also spent a great deal of money helping him return to his home state. Lu's generosity enabled Yi Ren to finally fulfill his long-held wish of ascending to the Qin throne.

## Teacher Handout 1



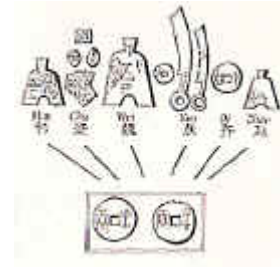
Ying Zheng, the son of Yi Ren, became the King of Qin at a tender age of 13 following the death of his father. Ying Zheng was much too young to administer state affairs and power quite naturally fell into the hands of Lu Buwei, who served as prime minister, and the empress dowager. In 238 B. C., Ying Zheng, 22, assumed control of state affairs and immediately erased the power of both the Empress Dowager as represented by Lao Ai, and that of Lu Buwei. He then set about fulfilling his ambition to create a powerful state by appointing Li Si as prime minister and selecting talented and capable men to strengthen his cabinet.

Ying Zheng solicited outside advice and promoted a new elite of both civil and military officials, including the mandarins Li Si and Wang Wan, and the generals Wang Jian, Wei Liao and Meng Tian. Ying then carried out the reforms advocated by his father, developing agriculture and the military. Soon Qin became the strongest of the seven warring states, defeating on the battlefield and through Machiavellian diplomacy the other six states from 230 to 221 B.C. In 221 B. C., China's division of more than several hundred years, lasting since the Spring and Autumn Period, came to an end and, for the first time in history, China became a unified, multi-nationality empire under a central government. After unification, Ying Zheng ordered his ministers to discuss possible titles for a supreme ruler of the country and a suitable name for the empire. Although the ministers suggested many titles and names, Ying Zheng considered his success in unifying the country as a great contribution which far surpassed the accomplishments of "San Huang" and "Wu Di", rulers in remote antiquity. He then used the given names of his two predecessors to coin the title "Huang Di" (Emperor) to signify his supreme sacred status as a feudal ruler. Ying Zheng founded a feudal monarchy and became emperor with the name "Shi Huang." While Qin Shi Huang boasted that his dynasty would last forever, it quite unexpectedly lasted for only two reigns. The dynasty, intact, collapsed only four years after his death in 210 B. C. Nonetheless, the title "Emperor" he created

## Teacher Handout 1

lasted for more than 2,000 years throughout feudal society.

To consolidate his power, Qin Shi Huang abolished the freedoms of the Shang and Zhou dynasties, and divided the country into 36 prefectures, broken down further into counties, townships, rings and lis. The central government had 12 ministers directly responsible to the emperor and the



majority of military and administrative officials were all directly appointed or removed by the emperor himself. Thus Emperor Qin Shi Huang had both the military and administrative powers of China concentrated in his hands. He ordered the establishment of new laws, by which "everything was to be dictated." Law became an important institution in China by which the emperor asserted his authority. Qin Shi Huang was also responsible for the "three unifications:" 1. Unification of weights and measures. 2. Unification of the Chinese written language, through the use of the official script of the Qin State across the country, under the auspices of Prime Minister Li Si and the mandarin Zhao Gao. 3. Unification of currency, involving abolition of the currencies of the former six kingdoms in exchange for Qin coins. His introduction of unified Chinese characters, currency and meteorology not only benefited economic development and cultural exchanges, but have had a strong and lasting influence on China.

Qin Shi Huang ordered the construction of a road system linking the former Yan, Qi, Wu and Chu areas, as well as number of roads especially for imperial use. The system eventually formed played an extremely important role in ancient transportation and economic exchanges. The emperor also confiscated weapons from the citizenry and implemented a system under which five households or 10 individuals were subject to punishment if one member of said groups committed an offence. The emperor also moved 120,000 wealthy families from across the country to develop the city of Xianyang, and sent merchants, slaves and criminals to develop border and remote areas. The policy he introduced exerted great influence on the history of China.

## **Teacher Handout 1**

Qin Shi Huang quite obviously made great contributions which overshadowed those of his predecessors. The emperor firmly believed he possessed deifying powers. He visited Mt. Tai to offer a grand sacrifice to the Heavens, visited famous mountains on several occasions and built China's 10-thousand li Great Wall and hundreds of imperial palaces, including the well-known E'Pang Palace.

The emperor's confidence level declined somewhat at the prospect of death, and he commissioned the construction of his tomb while still a young man.

Nonetheless, he sought ways to live a long life. For Example, he once sent several thousands male and female teenagers on sea voyage in search of immortals. Regardless of the efforts, the emperor failed to attain immortality. Qin Shi Huang, 50, died from a sudden illness in 210 B.C. while visiting Shaqiu Pingtai (the northwest part of today's Guangzong, Hebei Province). His death sparked uprisings across the country and the Qin Dynasty came to an end in 206 B.C.

Qin Shi Huang not only created splendid constructions but also devastated the development of productive social forces. Qin Shi Huang attempted to wipe out heresy by burning almost all classic works, excluding books on medicine, divination and agriculture. He also ordered that over 460 Confucianists be buried alive. Those who dared disregard the law or express their opinions on state affairs would be killed along with their entire families. The emperor's actions thus brought untold calamity to the nation.

The astonishing difference between creativity and destruction during the Qin made Qin Shi Huang a controversial leader, with contradictions ranging from a brutal tyrant to a peculiar but great leader, and the eternal emperor. Besides, he left the immense and monumental Qin Mausoleum, a creation mixed with both blood and tears.

<http://www.cnhomestay.com/city/terracotta/pits.htm>

## *The Terracotta Pits*

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The museum comprises three buildings each spanning a pit. Pit1, 2 and 3 ,respectively in order of discovery, are the main formation with a total area of 22,780 square meters (Approx. 5 acres) and 1,000 life-size terra-cotta warriors, horses and chariots.

### *Pit No. 1*

Pit No.1 ,discovered over the period May 1974 to June 1976, is in an oblong shape, 230 meters in length from east to west, 62 meters in width from north to south and 5 meters in depth. The pit covers an area of 114,260 square meters. A section of 960 square meters has been fully excavated and marked out as the centerpiece of the museum. So far, more than 2,000 warriors have been unearthed, and investigations suggest that up to 6,000 more lie beneath the dusty substrate in the pit alone. It is an earth-and-wood structure in the shape of tunnel. The terra-cotta warriors and horses in Pit No.1 are arrayed in a practical battle formation. In



the long corridor to the east end of the pit stand facing east the vanguard of 204 warriors in three lines in battle tunics and puttees, 70 in each, totaling 210 altogether. Armed with bows and arrows, they constitute the vanguard. There is one row of warriors in the south, north and west of the corridor respectively, facing outward. They are probably the flanks and the rear guard. Holding crossbows and arrows and other long-distance shooting weapons, they took up the job of defending the whole battle formation. The ten rammed partition walls divided Pit

## Teacher Handout 2

No.1 into eleven latitudinal with horse-drawn chariots in the center. The main body, directly behind the vanguard, consists of 36 groups of carts and warriors standing at various intervals, armor-clad, holding long-shaft weapons representing the principal force.

The vanguard force has no helmets, and their hair is instead formed into tall buns and their legs are protected by rattan. Their unique fighting skill is indicated by the crossbows in hands. Directly behind the vanguard, the heavily armed warriors stand in formation. Their legs are wrapped tightly, and they are positioned according the weapons they carry, including spears, battle-axes, halberds and crossbows. (picture crossbows) The main task of the soldiers in the right and left flank formations was to closely watch the deployment of enemy forces the responsibility of rear guard was to prevent an enemy from behind.

Fifty wooden chariots found were pulled by teams of four horses. The shafts on the chariots measure 3.7 to 3.96 meter in length, with the bodies measuring 1.2 meters in length and 1.4 meters in width. Each coach has a 40cm railing and rear door, and the 1.35 meter wheels have 30 spokes. On the chariots painted with lacquer and exquisitely decorated with patterns stand a three-man team, including the charioteer. And the chariot was surrounded by a small battle unit of between 50-100 infantrymen. Most chariots found in the No.1 Pit are considered to have been command carts carrying generals who sat in the left seat barking orders and either beating drums or ringing bells to indicate whether their forces should charge or retreat.(bai 39)(bai 42)



### *Pit No.2*



Located 20 meters to the north of the eastern end of Pit No.1, Pit No.2 is L-shaped and consists of four different mixed military forces, namely, infantry, cavalry, archers



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and charioteers. Trial explorations and excavations indicate the trench may hold as many as 350 terra cotta chariot horses, 100 cavalry steeds, over 900 warriors from various ranks, and 89 wooden chariots. The array is composed of four small divisions which represent the powerful flank force protecting the main body in the No. 1 Pit. The pit is measured 6,000 square meters.

The first small square formation of 230 crossbow archers, including 160 heavily armoured kneeling figurines in eight columns of 20 each occupies the first unit in the pit. Many other standing crossbow archers assume a shooting position to the rear. The battle array was highly effective when facing an enemy, with the two different shooting positions making it possible for archers to fire volleys at intervals in order to effectively stop the advancing enemy.



The second small square division is composed of 64 chariots divided into eight groups. The third division in the center of square array consists of a combination of chariots, infantrymen and cavalrymen which are divided into three columns, with six chariots in the first and third columns and seven in the second column. A figurine of a general is found in the last chariot in the third column.

A fourth square cavalry division found the crossbow archers consists of chariots and 108 cavalrymen in column array. Each chariot holds two figurines, a charioteer and a scout. The nine ranks of cavalrymen are divided into three groups of four each. Each tall cavalryman with strong features wears full armor, and stands beside his mount holding a bow in one hand and reigns in the other. The muscular horses wearing saddles and blankets appear ready for immediate action.

The above four small square divisions unite to form one larger unit as a highly flexible "battle array within a battle array."

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### *Pit. No.3*

Pit No.3 is located 25 meters to the north of Pit No.1 and to the west of Pit No.2. The plane of the pit is of concave shape totaling about 520 square meters. Out of the pit were unearthed one chariot, four terra-cotta horses and 68 clay armored warriors. To its east there is a sloping entrance, 11.2 meters long, 3.7 meters wide, opposite which is a chariot and horse house. On both sides of the house, there is a winging room, in which were unearthed 64 pottery figurines. The arrangement of the pottery figurines is quite different from those in Pits No.1 and No.2 in which the warriors are placed in the battle formation. But those in Pit No.3 are arrayed opposite to each other along the walls, in two rows. Even the weapons held by the warriors in Pit No.3 were only discovered one kind of weapon called "shu", which had no blades and are believed to be used by the guards of honor. Unearthed also in this pit was a remaining sacrificial of offerings and war prayers were practiced. Judging by the layout of the pit, it is likely the headquarters directing the mighty underground army.



<http://www.cnhomestay.com/city/terracotta/artistic.htm>

## ***The Sculpture Art of the Terra Cotta Warriors***

The terra cotta figurines unearthed at the Qin Shi Huang Mausoleum reveal the essence of China's sculptural art which has a long history and a fine national tradition.

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The terra cotta figurines unearthed at the Qin Shi Huang Mausoleum represent a distinguished peak in the fruitful history of ancient Chinese sculpture, with their elegant demeanor truly representing a major chapter in the history of Oriental sculpture.

The numerous significant achievements of the Qin terra cotta figurines are readily discernible. However, the most significant achievement is perhaps the huge size and imposing manner of figurines representative of the powerful Qin army. The vast majority of awe-struck visitors leave the Qin Mausoleum overwhelmed by such a large number of



terra cotta giants which form such a magnificent scene. The well over 7,000 terra cotta warriors and horses in full battle array spread over the more than 20,000 square meters appear to be prepared to confront the enemy at a moment's notice. Little imagination is required to visualize a massive swirling dust cloud which would blot out the sun and envelope the earth as they charged.

The height of the sculpted warriors averages around 1.8 meters, with some as tall as two meters. The horses are more realistically sized at 1.7 meters in height and 2 meters in length. While clay figurines dating to other historical periods have been unearthed in numerous other archeological digs, the Qin terra cotta figurines represent most significant find in terms of sheer numbers and size.

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Yet another significant achievement rests with the realistic depictions of Qin terra cotta figurines. Some archeologists theorize that the differing features and expressions resulted from the fact that separate models posed for each figurine.

The accurately proportioned figurines vividly depict life as if they could breathe on their own. The same applies to muscular horses which stand with forelegs straight and hind legs slightly bent. The horses, with nostrils open wide, ears standing erect and eyes flaring, seemed to be ready to charge into battle at any moment.

*The dress and facial expressions* of Qin army figurines enables one to discern generals from the ranks of soldiers and warriors. For example, dignified and strongly built generals are adorned in double-layered robes covered by colored plate armor. They also wear brown caps and shoes curved upward. The long robes of soldiers are covered with armor, while their caps are taller and each is grasping a weapon. Their fearless look reveals countless life-and-death battle experience. Warriors, on the other hand, are depicted according to the branch of service for which they were trained. Some archers holding bows are depicted in a kneeling position with their right knee on the ground and left leg bent. Other archers are in a standing position with their left foot half step in front of their right foot. In addition, they assume a shooting posture holding the bow in their extended left hand and arrow in the right hand close to their chest. They indeed appear ready to shower arrows on the enemy. The most impressive aspect of the figurines is perhaps the unique expressions on their faces. No two figurines have been found to have the exact same features, with some appearing to be frank and open men, while others appear to be solemn. Still others stare angrily ahead with knotted brow, some with tight lips and lowered eyes appear to be in deep thought, and others seem cheerful and naive.

Some archeologists suggest that facial features reveal the origins of the soldier. For example, one might have been a farmer from the Central Shaanxi plain,

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another a young man from Sichuan, and yet another a shepherd from the grasslands in northern China.

*The coloring* of Qin terra cotta figurines was another major achievement. Despite the peeling of brightly colored paint due to over 2,000 years of corrosion and a major fire, the flakes of remaining paint indicated the figurines were formerly covered with various bright colors such as red, green, blue, white, black and yellow. The imposing terra cotta figurines must have presented a magnificent scene prior to being buried in the trenches! The greatest level of effort and indeed the most monumental achievements can be found on the faces of the figurines. The long recognized fact that Qin Dynasty artists were highly skilled at depicting facial features was further verified by the Qin terra cotta figurines. Artists vividly depicted the foreheads,



superciliary ridges, nose bridges, chins, cheeks and hair on all figurines. Various aspects such as superciliary ridges, lips, mustaches and ears were obviously exaggerated. However, the exaggerated parts perfectly matched other features and the faces appeared natural following the application of paint. The method revealed the perfect integration of coloring and sculpturing. Careful analyses have revealed that at least three layers of paint were applied to the faces of figurines. The first layer consisted of a brownish raw lacquer, with pink or a similar color added as the second layer, and a thin layer of white paint applied as the final touch. The technique truly brought out the shine and color of human skin. However, the greatest attention was paid to the eyes. The readily distinguishable black pupils in the yellowish brown irises of figurines reflected the fact that traditional Chinese sculpture and painting considered the eyes to be the most important factor required to make a statue appear lifelike.



*A combination of molding and sculpturing* were employed to fashion the terra cotta figurines in the Qin Mausoleum. Traditional sculpturing methods used included layering, pinching, pasting, carving and painting. Long strips of clay



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were layered to form the rough outline of the body, with the pasting, pinching and carving methods employed to add robes and armor. Fashioning heads represented a comparatively complicated process. Facial features were achieved using a mold, with piling and sculpting used to form the back of the head. Ears were pasted to the heads prior to adding sculpted or molded hair buns. Refinements such as eyes, eyebrows, mouths, mustaches and ears were carefully carved to reveal the desired personality for the figurine.

Examinations of the Qin terra cotta figurines also revealed the excellence of clay figurine firing techniques. Analyses of broken pieces revealed that the figurines were baked at temperatures ranging between 950-1059 degrees Celsius. The pure luster, high density and hardness level of clay in most figurines is readily apparent. Modern attempts to duplicate the ancient baking process have, in fact, failed to produce figurines of equal quality.

***Armorclad general*** with a sword unearthed in the No. 1 Trench: This particular figurine, standing some 197cm in height, is wearing two layers of robes covered by a small armor covering his shoulders, and shin guards protecting his legs. His square-toed shoes curve upwards and he is wearing brown headgear. The general's arms are crossed, with his hands appearing to be resting on the handles of a sword.



***Armor.*** This particular kind of armor designed for generals protects the chest, back and shoulders. The front section of the armor cape, which is 96.5cm in length, covers the chest and abdomen, with the 61 cm long rear section covering the back and waist. Some 160 pieces of 4cm square bronze pieces were used to fashion the cape. The shoulders and edges of the armor cape are decorated with geometrical patterns, with eight flowers made of ribbon used to decorate the front plate, three flower patterns the back plate and one flower each for the upper arm plate.

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***Junior officer*** unearthed in No. 2 Trench: This junior officer is wearing trousers and a high-collar shirt under an armor cape. His square-toed shoes curve upwards and he is wearing a flat bun on his head. The special armor, which covers the chest but not the back or shoulders, was fashioned from a piece of leather inlaid with pieces of bronze in various shapes. The eight lines on the chest include 11 pieces of bronze each, with three lines on the lower section including five pieces of bronze each. The leather is inlaid with square, rectangular and irregularly shaped pieces of bronze.

***Armorclad infantryman***: Armorclad infantrymen unearthed in No.3 Trench, between 182-186cm in height, wear robes covered by turtleneck armor capes. They also wear short trousers.

<http://www.cnhomestay.com/city/terracotta/burial.htm>

## ***Qin Shi Huang Burial Grounds***

Providing detailed information about one of the most significant modern archaeological finds, the Mausoleum of Emperor Qin.

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This splendid necropolis apparently depicting the whole of China in miniature is centered under the 47-meter-high (154 ft) mound. Some survey indicates that the ceiling is studded with jewels depicting the sky, and mercury was pumped in mechanically to create images of flowing river. Trial digs have revealed high contents of mercury in the soil. However, the official entrance to the tomb has yet to be found. It is said that workers and supervisors involved in its design and construction were buried alive within the tomb. Some speculations say that the Emperor was so superstitious and fearful that he had the necropolis built as a decoy and was, in fact, buried somewhere else.

The Qin Mausoleum, located in Lintong County, Xi'an, Shaanxi Province, is surrounded by the Lishan Mountains to the south and the Weihe River to the north. Five peaks in the Lishan Mountains served as a backdrop for the rarely seen "lotus tomb" which coincides traditional Chinese geomantic omens. The site, surrounded by mountains and rivers, was an ideal burial site for feudal emperors who believed they would lead a new life in another world.



Construction of the Qin Mausoleum, the largest imperial tomb in China, began in 247 B. C. soon after Qin Shi Huang ascended to the throne and was still underway at his death 210 B. C. Construction of auxiliary projects was halted in 208 B. C. when troops surrounded the imperial capital during an uprising.



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Numerous groups of people worked on the 39-years construction project, from high-ranking officials such as Prime Minister Li Si who was in charge of the work, to criminals forced to do manual labor. As many as 720,000 workers from across the country helped construct the tomb.

Criminals were forced to cut and transport massive logs from a thousand miles away, as well as large stones from hundreds of miles distant. Numerous laborers died from hard labor carried out for many years. The unmatched immense magnificent mausoleum represents a solemn, but nonetheless stirring segment in the history of China.



The mausoleum, which covers 56.25 square km. was designed in accordance with the layout of the emperor's capital. The original tomb, measuring some 115 meters in height, was covered with dirt. The remaining 7

6 meters of the structure resemble a topless pyramid. A city wall, measuring four meters in height and four meters in width, encircles the buried palace. The wall, constructed of unfired bricks, has gates on four sides.

The tomb was originally surrounded by two rectangular walls some eight meters thick, with the outer wall stretching 6,264 meters and the inner 3,870 meters. Both walls featured corner towers and broad gates on four sides, with the arrangement resembling a real city. Pieces of tile, gate stones and piles of red soil are all that remain of the once magnificent structure. High walls, measuring one meter in height, can be found in Yuejiagou and Xiachen villages located at the southern end of the tomb complex. The sections allow one to clearly see the denseness of layers which are between five and seven centimeters thick. The thick flat loam

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walls, which are strong as bricks, represent the wonderful craftsmanship found thousands of years ago.

Hundreds of auxiliary tombs, both large and small, have been found inside and outside the walls of the cemetery, including 10 sacrificial trenches, with the complex symbolizing the overall layout of the capital. Ongoing archeological work continues to yield more traces of structures and artifacts, including the imperial burial palace, side palaces, gardens and temples. The excavated sites include the bronze cart and horse trench, the western tomb construction site, horse trench, rare bird and animal trench, tombs for the princes and princesses of Shangjiao Village and tomb builders from Zhaobeihu Village. Each of the sites has enriched our knowledge and understanding of the Qin system, culture, clothing and material civilization. The discoveries have not only peaked our curiosity, but also offer bright prospects for archeological work.

### *(1) Remains of the Mausoleum*

The mausoleum was once a brilliant architectural complex with numerous buildings. Archaeologists working over several decades have discovered and excavated several dozen construction sites covering tens of thousands' of square meters, including the most important large tomb, gardens, temples and houses.



The square ruins of the imperial burial palace cover 3,575 square meters on the north side of the tomb. The structure has a finely crafted pedestal foundation, and is thought to have been constructed with a hipped-roof encircled by single winding corridors. Broken pieces of tile and red clay are scattered across the area, with interior sections of white-washed walls coated with mixture of earth and wheat grass. The bases of stone columns and neatly arranged apron are still easily distinguishable around the site. The imperial burial palace, which appears to have been based on the pre-Qin tomb style, was built as an integral component

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close to the main tomb, instead of inside it. This particular approach represented the introduction of a new system for constructing mausoleums.

A group of six buildings stretching east to west are found some 50 meters north of the imperial burial palace. The large site, which covers 4,800 square meters, is 240 meters long from east to west and 20 meters wide. Most of the hipped roof or quadrangular buildings face north, with a small group facing west. The 50 meter long flagstone apron, 55cm square plinth stones, drainage ditch, finely crafted stone water drainage system and red interior walls show the architectural skill and magnificence of the construction itself.

Large foundations are found on a site with four buildings laid out east to west which is located further to the north. The solid smooth floors, blue flat stones inlaid in the walls, stone steps, ridge ornaments shaped like an owl's tail, eaves tiles and knocker base are all extremely attractive. The exquisitely crafted corrosive-proof tiles, with a diameter of 61 cm amazing, are decorated with vivid patterns and were designed to protect the tenons. The highly artistic architecture enables one to easily imagine the former grandeur of the ancient mausoleum.

Gardens, temples and houses have been found in three separate locations in the western section of the complex, both inside and outside the walls. Large numbers of cloud-shaped tiles and other building materials have also been unearthed, along with dozens of objects such as a bronze bell inlaid with gold and silver. The bell, carved with "Yue Fu", is a rare treasure indeed. It provides ample proof that the Qin established a "Yue Fu" office responsible for collecting folk songs and ballads to entertain the imperial court. It also indicates the colorful life of the period existing in spite of the stifling environment prevailing under the dictatorship of feudal rulers.



## Teacher Handout 2

### *(2) Sacrificial Trenches*

A group of sacrificial cart and horse trenches covering 3,025 square meters were unearthed some 20 meters west of the Qin Mausoleum. One trench, measuring seven meters in length and 2.3 meters in width, was excavated in 1980 and yielded two large colored and decorated bronze carts and horses. The combination of carts and horses reveal the high level skill of Chinese forefathers and show the complicated style of carts, casting and sculpturing and processing techniques characteristic of the period.

The large number of horses buried with the dead is indicative of the importance the animals played in daily life. Sacrificial horse trenches have been unearthed in two locations, one in the eastern part of the outer tomb wall, and the other between the inner and outer walls. Their location indicates that Qin Shi Huang had stables both inside and outside the capital city.

Ninety-nine horse trenches, most of which hold one horse, have been excavated in the outer sacrificial stable. -The horses are closely arranged in three line formations running from the More than 1,000 Pottery figurines and real weapons have south to the north. Despite the fact that only skeletal remains exist, a knife found in the mouth of one horse indicates that horses were killed prior to burial. Many painted figurines of kneeling horsemen have also been found. The vivid masterpieces of art are still in good condition. Various unearthed objects bear inscriptions such as "middle stable", "palace stable", "left stable" and "small stable". Similar names found in the "Jiuyuan Lu" (imperial stables) section of the "Written Bamboo Slips of Qin Mausoleum" clearly show the functions of the stables.

The stables feature quite different layouts, with the inner stable found in the large L-shaped trench featuring wood stalls. Each stall holds an orderly array of three horses. Several hundred horses were unearthed in the trenches along with a number of figurines of horsemanship instructors standing by hierarchy is readily

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discernible when compared the previously mentioned figurines with those of other horsemen measuring 70cm in height.

Sacrificial trenches of rare birds and animals were discovered in the western section between the outer and inner walls. The 31 trenches are arranged in three lines running from the south to the north. Each trench in the middle line holds an earthen coffin filled with bones, with animals buried separately according to their species. Metal rigs found around the necks of some horses indicate that they were once tied in their stables. All trenches in the outer two lines yielded a kneeling figurine measuring between 68-73 cm in height. The figurines most likely represent stablemen.

The largest and most attractive sacrificial trench is without a doubt the one holding the Qin terra cotta army. Three trenches, which cover over 20,000 square meters, hold well over 7,000 life-size terra cotta horses and armoured warriors.

Been discovered in the small one-sixth section of the No. 1 Trench thus far excavated. The monumental discovery has indeed caught the attention of hundreds of thousands people from throughout the world.

### ***(3) Auxiliary Tombs Reveal Obsession With Hierarchy***

Auxiliary tombs are found in four sections of the Qin Mausoleum: the northern section in the city itself features 28 small to medium size auxiliary; with other tombs found in the western section between the city walls, and the outer eastern and western sections.

The largest auxiliary tomb is found in the western section of the city. The inner area of the tomb measures 15.5 meters in length and 14.5 meters in width, and is fronted by an entry pathway stretching 15.8 meters. A red coat of paint and ashes have been discovered in the tomb. The position and standard

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characteristics of the structure tells that the owner should be Prince Gao, Qin Shi Huang's son who chose death rather than the throne and requested "to be buried at the foot of Lishan Mountain near his father". Second emperor Hu Hai gave Gao 1 00,000 coins for funeral expenses.

A mysterious group of 48 auxiliary tombs have been found in the western section between the inner and outer walls. The fact that nothing has been found in the tombs adds even greater mystery to the burial site.

Auxiliary tombs found in Shangjiao Village to the east of the outer wall have also attracted great attention. The 17 tombs are neatly arranged in a single line stretching from the south to the north. Eight tombs excavated in 1976 yielded 200 pieces of gold and silver, as well as a number of sacrificial objects made of bronze and iron. Various objects were inscribed with the words "Shao Fu" (Young Master's Mansion) or with "Rong Lu" (Honor and Fortune), with other objects including personal stamps and letters. The objects indicate that the tombs held the remains of members of the royal family. The scene offers evidence that the victims, between 23-30 years of age, were murdered, with the mutilated bodies of some chopped into several pieces, and still others having been shot or hanged.

One history book points to the fact that the auxiliary tombs hold the remains of princes and princesses killed by Hu Hai after he usurped power and the throne. Hu Hai was afraid the brothers and sisters would imperil his power and thus ordered their death. He then granted the honor of accompanying their father".

Two auxiliary tomb sites are thought to have existed three miles southwest of the Qin Mausoleum. However, the tomb once located north of Yaochitou Village was apparently damaged beyond recognition and has not as yet been located. The second tomb to the west of Zhaobeihu Village covers 8,100 square meters, with the overall layout measuring 180 meters in length from the south to the north and 45 meters in width.

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The 103 tombs in burial site #32 were excavated in 1978. The tombs held the skeletal remains of 100 people, but failed to yield coffins or other objects. A single tomb, however, did hold one simple tile coffin. Inscriptions found on tile pieces recorded the native homes, names, positions and job titles of 19 entombed people. The inscriptions indicate the people from six conquered states were sentenced to hard labor because of the inability to pay various types of fines. The pieces represent the earliest tomb inscriptions found in China.

### *(4) Mysterious Underground Palace*

"Records of the Historian: Biographic Sketches of Qin Shi Huang", the earliest and most dependable record, states: "Qin Shi Huang gained power and shortly thereafter began building his tomb on Lishan Mountain. More than 700,000 people from across the country participated in the construction project. The dug deep into the earth, fashioned outer coffins with melted copper and buried money, valuables and treasures, as well as rare birds and animals. Crossbows were installed to kill any one attempting to rob the tomb. Mercury was used to symbolize surging rivers, lakes and the sea. The tomb held everything in the world, including objects related to astronomy and geography. Lamps were filled with 'renyu' cream to ensure an eternal flame". SimaQian, author of the aforementioned work, provided a detailed depiction of the miraculous tomb.

Archeologists and experts from many other disciplines have worked together to explore the secrets of Qin Shi Huang's underground palace. Between 1981-1982, Chang Yong and Li Tong worked under the leadership of professors Xie Xuejin and Zheng Kangle and in close cooperation with the archeological team to test the mercury content in the center section of the sealed Qin Mausoleum. They found that a 12,000 square-meter area contained unusually strong mercury content. The variations of travelling mercury was 70-150OPPb, a level more than 10 times that of dirt in surrounding areas. The differing levels quite obviously

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resulted from the volatilization and infiltration of mercury bused in rounding areas. The differing levels quite obviously resulted from the volatilization and infiltration of mercury buried in the tomb, and thus proved the accuracy of Sima Qian's descriptions.

The use of such a large quantity of mercury to symbolize rivers, lakes and the sea to differentiate between the human and nether worlds quite obviously symbolize that the emperor would always rule the land. Ancient people referred to water as a symbol of longitude and when building the tomb applied the concept to create geographical features such as mountains and rivers for the dead. To some extent, at least, this not only reflected the development of geographical science in ancient China, but also the characteristic design of the Qin Mausoleum which pursued the unique and involved bold creative imaginations. Ancient people pursued the imperial eternity and attempted to perfect the imaginary in terms of reality. They indeed wanted the rivers and sea to flow for eternity. The design established an unequalled record which will never again be matched. The feat also reveals the Qin achievement in the development and use of mercury.

Astronomical features in the buried palace are reflected in paintings. "Studies of Terra Cotta Soldiers and Horses of the Qin Dynasty", written by Shaanxi Archeologist Yuan Zhongyi, describes the astronomical paintings in the tomb thusly: "A golden toad symbolizing the sun, ajade hare the moon and other stars in a round red design. " Astronomical paintings of this kind were first found in the Zengbouyi Tomb, a tomb dating to the early Warring States Period (475-221 B. C.), in Suixian County, Hubei Province. Similar works were later found in various Western Han Tombs (206 B. C. -24 A. D. in Luoyang, Henan Province, and were, in fact, recently unearthed from another Western Han Tomb on the campus of Xi'an Communications University in Shaanxi Province. The discoveries have readily proved Yuan's conjecture.



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The work "Hundreds Imperial Palaces" describes buried palaces as models of imperial palaces. Qin Shi Huang spent his lifetime abusing available manpower to build numerous pavilions and villas for his travels. The E'Pang Palace was still under construction at his death, and models of various structures were buried in his tomb.

What are the actual dimensions of tombs with such a rich content?

"Records of the Histodan" and "The Han Book" point out that underground palaces were usually built at a depth reaching or slightly below the third layer of ground water. In 1982, the Qin Mausoleum Archeological Team cleared a Qin well located in the northwestern section between the inner and outer walls and measured the existing water level at 16 meters deep. The discovery led to the inference that the underground palace was constructed at a depth of 20 meters or more. Intact, the tomb of one Qin duke, whose social status would have in no way compared with that of Qin Shi Huang, was constructed at a depth of 25 meters. "The Old Han Rites" stipulates that a Han emperor's tomb should be constructed at a depth of 30 meters and should cover 6.6666 hectares. The depth of the Qin Mausoleum, a structure which is much larger than a Han tomb, has thus been estimated at over 30 meters.

The first problem when constructing a deep underground palace centered on preventing ground water seepage. The classic work entitled "The Han Book, the Biography of Jia Shan" records the following clue to the process: "Line the walls with stones, solidify the interior wall with melted copper, and coat the outer wall with red lacquer." A further clarification in "The Han Book" reads: "Prevent ground water seepage by using stones and painting the exterior wall with lacquer."

Construction of the tomb required a large quantity of stones. Various historical documents concerning construction of the tomb note that hundreds of thousands of criminals were forced to carry stones from the North Mountains. The stone

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processing site in Zhengjia Village shows that at least 750,000 square meters of stones were used to construct the Qin Mausoleum.

Stones used for the mausoleum were carved with beautiful patterns and painted with moisture-proof red lacquer. Seams between the stones were filled with melted copper and tin. An even more complicated, and as yet undetermined, method was undoubtedly used to cover the mouths of springs. One hint to the process can be found at the tomb of Empress Wu Ze Tian of the Tang Dynasty (618-907). Seams between stones were filled with melted iron to prevent ground water from seeping into the tomb.

Various surveys have indicated that the top of the Qin underground palace measures 460 meters in length from the south to the north and 392 meters in width. Based on architectural principles and comparing degradation slopes in other large tombs indicates that the floor of the palace rests at a depth of 50 meters, with the edges of the rectangular stretching about 250 meters each. The area of the ground water surface is thought to be much larger, with estimates of the edge searching as high as 320 meters. According to said estimates, the area under the ground water level covers at least 300,000 square meters, and was constructed using stones and seams filled with melted copper. Constructing such a grand and complicated project would be difficult to achieve even today. The primary focus of the extensive construction efforts,

Including the use of mercury and secret crossbows was to prevent intrusions by grave robbers. The practice of robbing tombs was simply an auxiliary result of elaborate funeral customs. Grave robbers, which appeared as early as the Warring States Period, were a major concern of both the imperial and wealthy families. Designers racked their brains to ensure the security of the Qin Mausoleum, the most luxurious tomb in China, with history proving their success. Not a single sign has yet been found indicating that the security of the tomb has been breached. Archeological surveys verify the integrity of all walls and gates,

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as well as earthen seal covering the tomb. However, several holes reaching a depth of some 10 meters indicate attempts by would-be grave robbers.

Successfully robbing the secure tomb would have indeed required a Herculean effort. Archaeologists are quite obviously delighted that the treasures of the Qin Mausoleum have remained safely in the nether world awaiting excavation.